Field Development Planning

Course Price

£3250

Course Description

This short course describes all the stages field development planning, starting with the basics of oil and gas exploration; the preliminary quantification and the appraisal activities; the data requirements and integration for preparation field development plan, including wells, reservoirs, production facilities, exporting options, environmental and government regulations. The data preparation and documentation requirements for project sanction and implementation planning will also be covered, including practical exercises and field cases studies which will be used to illustrate the methodology.

On this course, the alternative options available to develop hydrocarbon resources will also be discussed, the importance of developing and integrating associated costs in onshore and offshore environments will also be addressed. In addition, Subsea facilities and drilling components will be covered, and the key drivers to optimise costs and minimise risks will also be covered. Data management and integration will also be highlighted.

Course Objectives

- Technical requirements to understand and evaluate hydrocarbon resources candidates for development.
- Knowledge and skills to approach a field development planning and prepare a field development plan.
- The need for representative lifecycle cost estimates for oil and gas development and to understand the key project drivers.
- The role of various critical disciplines for the field development.
- The identification of the key areas to maximise the project value.
- Identification of the risks and the mitigation actions.
- Implications for different stakeholders as national oil companies, investors and regulators.
- Preparation of the field development plan.

Who Should Attend

This course is designed for all professionals interested in understanding the different activities, phases and complexities involved in the development of an oil and gas field, such as: geoscientists, reservoir and petroleum engineers, drilling and completion engineers, process and facilities engineers, commercial, financial professionals and managers.
Course Content

DAY 1

Introduction, objectives & concepts, Life cycle of an oil and gas field

- Life cycle of an oil and gas project. Industry trends on maturing oil and gas projects
- Hydrocarbon accumulations overview, exploration and development techniques, role of exploration and development disciplines, geophysical methods, seismic, gravity, and magnetics, Wild-Cat drilling, geological studies
- Decisions to explore, test and development. Project identification and feasibility to develop
- Field development definitions and concepts; Integrated field development concept and challenges
- Field Development team initial exercise
- Framing Projects Methodology

Day 2

UNDERSTANDING THE HYDROCARBON RESERVOIRS

- Evaluating a discovered oil/gas field. Key data collection during exploration.
- Estimating hydrocarbons in place, recoverable volumes & recovery mechanisms
- Integrating data for preparation of the field development plan, concepts and challenges.
- Insights for commerciality of a hydrocarbon resource discovery.
- Data management and Interpretations.
- Field Development Plan Team exercise 2
- Field performance and management process.
- Criteria and strategies influencing the development, and the production performance

Day 3

evaluating DEVELOPMENT options

- Identification and evaluation of the different development options and key drivers for a successful development
- Subsurface evaluations, the reservoir static and dynamic models. Integrating and characterizing the reservoir, geology, fluids & PVT, cores special core analysis, well tests and production data.
- Role of simulation in field development. Construction, calibration and history matching a reservoir static & dynamic model.
- Defining and preparing production forecasts
- Wells and completion requirements and optimization options
- Field Development Plan study case
- Identifying project risks & key reservoir uncertainties
- Gates in the field development: Identify, Assets, Select, Define, Execute & Operate. Framing a project
Day 4

PRODUCTION OPTIMIZATION, COST ESTIMATION AND ECONOMICS

- Preliminary cost estimations, estimating development costs, preliminary economics.
- Factors affecting oil recovery processes in subsurface and surface technologies, pumps, facilities & exporting options.
- Production optimization and engineering, wells, production facilities, exporting options.
- Requirements for project sanction. Reservoir management plan. Environment impact assessment (EIA). Risk analysis and project schedule.
- Additional data requirements before development decision (appraisal wells, production tests, etc.). Integrity problems review and diagnostic.
- Reservoir surveillance, data analysis and technologies to Improve oil recovery in field development Stages
- Oil Recovery methods: primary, secondary & tertiary recovery. Flooding patterns considerations. Enhanced oil recovery concepts screening criteria methods
- Field Development Plan Team Exercise 3.

Day 5

FIELD development Master Development Plan

- Master Development Plan concept and documentation preparation.
- Field development case 1 Light oil Field – Exploration, appraisal, development, wells Location, completions, production facilities, water treatment, oil exports, and predictions
- Field development case 2 Heavy oil field. Exploration, appraisal, development, water injection and Enhanced Oil Recovery Options (Thermal, Gas injection, Chemicals), production forecasts, Surface facilities options, costs estimates, risks and uncertainties.
- Field Development Plan Team Exercise 4.
- End session interactive debates, discussion, Question & Answers.

At the end of this course the participant will have the knowledge required to formulate a field development plan, define implementation strategies, identify and evaluate alternative development options and areas with potential for optimization; identify risks, define mitigation actions and to prepare a field development plan document.

CPD Unit

Continuing Professional Development

35 HOURS CPD